



**west virginia** department of environmental protection

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**ENGINEERING EVALUATION / FACT SHEET**

**BACKGROUND INFORMATION**

Application No.: R13-3364  
Plant ID No.: 017-00163  
Applicant: Jay-Bee Oil & Gas, Inc.  
Facility Name: Pleasants Compressor Station  
Location: Wick, Tyler County  
NAICS Code: 221210  
Application Type: Construction  
Received Date: April 11, 2017  
Engineer Assigned: Roy F. Kees, P.E.  
Fee Amount: \$4,500.00  
Date Received: April 13, 2017  
Complete Date: May 15, 2017  
Due Date: August 15, 2017  
Applicant Ad Date: April 12, 2017  
Newspaper: *Tyler Star News*  
UTM's: Easting: 499.200 km      Northing: 4,4361.712 km      Zone: 17  
Latitude: 39.404915  
Longitude: -81.009292  
Description: Construction and operation of a natural gas compressor station.

**DESCRIPTION OF PROCESS**

The following process description was taken from Permit Application R13-3364:

Jay-Bee Oil & Gas, Inc. plans to construct the Pleasants Compressor Station near the community of Meadville near the border between Tyler and Pleasants Counties. This station will receive, compress and dehydrates natural gas from area Jay-Bee well pads prior to injection into a gathering line owned and operated by others. More specifically, Jay-Bee intends to install:

- Three gas compressors and Caterpillar 3608LE driver engine
- One gas compressor and Caterpillar 3516LE driver engine
- Once Vapor Recovery compressor and Cummins G5.9 driver engine
- One 125 MMSCFD Triethylene Glycol dehydration unit
- Six 210 BBL Produced Fluids Tanks
- One Hy-Bon CH 10.0 enclosed combustors for control of emissions from the dehydration unit and condensate truck loading.

The following discussion describes planned equipment and material flow through this facility:

Gas produced by remote Jay-Bee wells will be passed through an inlet separator, then compressed through the four gas compressors (driven by CAT 3608 and CAT 3516 engines), dehydrated and injected into pipelines for transportation to facilities owned by others for further processing. A small portion of the dehydrated gas will be used as fuel for the compressor engines and dehydration unit re-boiler. The total amount of gas that will be processed through this facility will vary over time, but could reach a maximum of 125 MMSCFD.

Produced fluids removed from the incoming raw gas stream will be routed to the six 210 BBL accumulation tank. The accumulated liquids (a maximum of 30 BBL per day of condensate and a maximum of 10 BBL per day of produced water) will be transported via truck to a processing facility owned and operated by others.

Vapors emitted by the storage tank (flash, working and breathing losses) will be captured and routed to the Vapor Recovery Unit where the vapors will be compressed and re-injected to the inlet side of the gas compressors. A capture and control efficiency of 95% is being claimed for the VRU.

Vapors from the dehydration still vent and vapors from condensate truck loading operations will be captured by a piping system that will route the vapors to the enclosed combustor.

As noted above, the inlet gas will be compressed and dehydrated prior to injection into a gathering pipeline. The dehydration process will generate a gaseous waste stream (Still Vent Vapors and Flash Gas) in addition to the dehydrated inlet gas. The majority of the Flash Gas will be utilized as fuel for the dehydration unit's reboiler, the excess Flash Gas, along with the Still Vent Vapors will be routed to enclosed combustors where the organic constituents will be destroyed at an efficiency of at least 99%. For permitting purposes, it is conservatively assumed that a minimum of 98% of the still vent vapors will be combusted in the enclosed combustors.

In addition to the equipment discussed above, the station will also have miscellaneous storage tanks for engine oil, compressor oil, engine coolant and dehydration medium (triethylene glycol)

## SITE INSPECTION

A site inspection was conducted on May 9, 2017 by James Robertson of the DAQ Enforcement Section. According to Mr. Robertson, the proposed site is located on top of a hill with only a few houses in the vicinity, with the closest being approximately 600' away at a lower elevation. At this point, an unimproved road has been cut to the site but no actual site preparation has begun. The existing access road is close to a resident (the one 600' away) that is not the surface owner. Based on the site visit, I saw no houses or other structures that would disqualify this site for a permit. In my opinion, this site is suitable for a NSR Permit.

Directions as given in the permit application are as follows:

*From the intersection of I-77 and State Route 2, just north of Parkersburg, take Route 2 north to the community of Bens Run. In Bens run, turn right onto County Route 7 (Arvilla Road). Proceed on County Route 7 approximately 9.7 miles to the intersection with County Road 7/2. Turn on to Route 7/2 (Herron Road) and proceed approximately 0.6 miles. Site entrance road is on the right.*



## ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this facility consist of the equipment listed in the following table and fugitive emissions. Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates and 40CFR98 Subpart W. The following table indicates which methodology was used in the emissions determination:

<b>Emission Unit ID#</b>	<b>Process Equipment</b>	<b>Calculation Methodology</b>
CE1 - CE3	2,370 hp Caterpillar G3608 LE Reciprocating Internal Combustion Engine (RICE) w/ Oxidation Catalyst	Manufacturer's Data, EPA AP-42 Emission Factors
CE4	1,380 hp Caterpillar G3516 LE Reciprocating Internal Combustion Engine (RICE) w/ Oxidation Catalyst	Manufacturer's Data, EPA AP-42 Emission Factors
VRU-1	84 hp Cummins G5.9 VRU Compressor	EPA Certification, EPA AP-42 Emission Factors
RSV-1	125 mmscfd TEG Dehydrator Still Vent w/ Flare or Thermal Oxidizer	GRI-GlyCalc 4.0
RBV-1	2.0 MMBtu/hr TEG Dehydrator Reboiler	EPA AP-42 Emission Factors
T01 – T06	210 bbl (8,820 gal) Produced Fluid Storage Tanks	EPA Tanks 4.09d / Gas-to-Oil Ratio Direct Measurement
T07-T10	500 gal Engine Oil Tanks	Negligible
T11-T14	500 gal Compressor Oil Tanks	Negligible
T15	500 gal Triethylene Glycol Tank	Negligible
T16-T19	500 gal Ethylene Glycol Tank	Negligible
TL-1	120 bbl/day (5,040 gal/day) Condensate Loadout Rack	EPA AP-42 Emission Factors
TL-2	80 bbl/day (3,360 gal/day) Produced Water Loadout Rack	EPA AP-42 Emission Factors
VCU-1	10 MMBTU/hr Enclosed Combustor	EPA AP-42 Emission Factors/ Engineering Estimate

The following table indicates the control device efficiencies that are required for this facility:

<b>Emission Unit</b>	<b>Pollutant</b>	<b>Control Device</b>	<b>Control Efficiency</b>
2,370 hp Caterpillar G3608LE RICE w/ Oxidation Catalyst (CE1-CE3)	Carbon Monoxide	Oxidation Catalyst	93%
	Volatile Organic Compounds		55%
	Formaldehyde		82%
1,380 hp Caterpillar G3516LE RICE w/ Oxidation Catalyst (CE4)	Carbon Monoxide	Oxidation Catalyst	93%
	Volatile Organic Compounds		55%
	Formaldehyde		82%
125 mmscfd TEG Dehydrator Still Vents (RSV-1)	Volatile Organic Compounds	VCU-1	98 %
	Hazardous Air Pollutants		98 %
Produced Fluid Tanks (T01 – T06)	Volatile Organic Compounds	Vapor Recovery Units	95 %
	Hazardous Air Pollutants		95 %

The total facility PTE (including fugitives) is shown in the following table:

<b>Pollutant</b>	<b>R13-3364 PTE (tons/year)</b>
Nitrogen Oxides	43.51
Carbon Monoxide	22.54
Volatile Organic Compounds	62.92
Particulate Matter-10	3.30
Sulfur Dioxide	0.18
Formaldehyde	5.55
Total HAPs	11.578
Carbon Dioxide Equivalent	49,053.00

Maximum detailed controlled point source emissions were calculated by Jay-Bee and checked for accuracy by the writer and are summarized in the table on the following two (2) pages.

## Jay-Bee Oil & Gas, Inc. – Pleasants Compressor Station (R13-3364)

Emission Point ID#	Source	NO <sub>x</sub>		CO		VOC		PM-10		SO <sub>2</sub>		Formaldehyde		Total HAPs		CO <sub>2</sub> e
		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	ton/year
1E	Compressor Engine #1	2.61	11.44	1.01	4.41	2.45	10.71	0.18	0.78	0.01	0.05	0.25	1.08	0.57	2.50	2889.20
2E	Compressor Engine #2	2.61	11.44	1.01	4.41	2.45	10.71	0.18	0.78	0.01	0.05	0.25	1.08	0.57	2.50	2889.20
3E	Compressor Engine #3	2.61	11.44	1.01	4.41	2.45	10.71	0.18	0.78	0.01	0.05	0.25	1.08	0.57	2.50	2889.20
4E	Compressor Engine #4	1.52	6.66	0.60	2.64	1.07	4.68	0.11	0.50	0.01	0.03	0.23	1.01	0.44	1.93	7669.00
5E	VRU Compressor	0.19	0.81	0.37	1.62	0.05	0.21	0.01	0.06	0.00	0.00	0.02	0.07	0.02	0.11	391.00
6E	Reboiler	0.20	0.88	0.17	0.74	0.01	0.05	0.02	0.07	0.00	0.01	0.00	0.00	0.00	0.02	1058.00
7E	Dehydrator Still (VCU-1)	0.21	0.83	1.11	4.34	0.49	2.15	0.02	0.07	0.00	0.00	0.00	0.00	0.02	0.09	1590.00
8E	Condensate Truck Loading	0.00	0.00	0.00	0.00	7.14	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.02	0.00
9E	Produced Fluids Tanks	0.00	0.00	0.00	0.00	3.31	14.50	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.47	50.00
10E	Produced Water Truck Loading	0.00	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BD	Compressor Blowdowns	0.00	0.00	0.00	0.00	-	4.73	0.00	0.00	0.00	0.00	0.00	0.00	-	0.15	0.00
SSM	Startup/Shutdown Events	0.00	0.00	0.00	0.00	-	1.62	0.00	0.00	0.00	0.00	0.00	0.00	-	0.05	
<b>Total Point Source</b>																
		<b>9.95</b>	<b>43.51</b>	<b>5.27</b>	<b>22.54</b>	<b>19.47</b>	<b>62.06</b>	<b>0.70</b>	<b>3.05</b>	<b>0.04</b>	<b>0.18</b>	<b>0.99</b>	<b>5.55</b>	<b>2.66</b>	<b>11.57</b>	<b>48935</b>
Fugitive	Component Leaks	0.00	0.00	0.00	0.00	0.20	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	118.00
Fugitive	Dust	0.00	0.00	0.00	0.00	0.00	0.00	9.02	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Fugitive</b>																
		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.20</b>	<b>0.86</b>	<b>9.02</b>	<b>0.25</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>118.00</b>
<b>Total Sitewide</b>																
		<b>9.95</b>	<b>43.51</b>	<b>5.27</b>	<b>22.54</b>	<b>19.67</b>	<b>62.92</b>	<b>9.72</b>	<b>3.30</b>	<b>0.04</b>	<b>0.18</b>	<b>0.99</b>	<b>5.55</b>	<b>2.66</b>	<b>11.57</b>	<b>49053</b>

## REGULATORY APPLICABILITY

The following rules apply to this modification:

### **45CSR2** (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the reboiler (RBV-1) is below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR2.

Jay-Bee would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

### **45CSR6** (To Prevent and Control Air Pollution from the Combustion of Refuse)

The purpose of this rule is to prevent and control air pollution from combustion of refuse.

Jay-Bee has one (1) enclosed combustor (VCU-1) at the facility. These units are subject to section 4, emission standards for incinerators. These units have negligible hourly particulate matter emissions. Therefore, these units should demonstrate compliance with this section. The facility will demonstrate compliance by maintaining records of the amount of natural gas consumed by these units and the hours of operation. The facility will also monitor the flame of the combustor and record any malfunctions that may cause no flame to be present during operation.

### **45CSR10** (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the reboiler (RBV-1) is below 10 MMBTU/hr. Therefore, these units are exempt from the aforementioned sections of 45CSR10.

**45CSR13** (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

The proposed construction has potential to emit in excess of six (6) lbs/hour and ten (10) TPY of a regulated pollutant and, therefore, pursuant to §45-13-2.24, meets the definition of a “stationary source” under 45CSR13. Pursuant to §45-13-5.1, “[n]o person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without . . . obtaining a permit to construct.” Therefore, Jay-Bee is required to obtain a permit under 45CSR13 for the construction of the facility.

As required under §45-13-8.3 (“Notice Level A”), Jay-Bee placed a Class I legal advertisement in a “newspaper of general circulation in the area where the source is . . . located.” Additionally, Jay-Bee paid the appropriate application fee.

**45CSR16** (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subparts JJJJ and OOOOa. These requirements are discussed under that rule below.

**45CSR22** (Air Quality Management Fee Program)

Jay-Bee is not subject to 45CSR30. The Pleasants Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOOa, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

Jay-Bee is required to pay the appropriate annual fees and keep their Certificate to Operate current.

**40CFR60 Subpart JJJJ** (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE))

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 2,370 hp Caterpillar G3608LE RICEs (CE1-CE3) were manufactured after the July 1, 2007 date for engines with a maximum rated power capacity greater than or equal to 500 hp. These engines will be subject to the following emission limits: NO<sub>x</sub> – 1.0 g/hp-hr (5.51 lb/hr); CO – 2.0 g/hp-hr (11.02 lb/hr); and VOC – 0.7 g/hp-hr (3.86 lb/hr). Based on the manufacturer’s specifications for these engines, the emission standards will be met.

The 1,380 hp Caterpillar G3516LE RICEs (CE4) was manufactured after the July 1, 2007 date for engines with a maximum rated power capacity greater than or equal to 500 hp. These engines will be subject to the following emission limits: NO<sub>x</sub> – 1.0 g/hp-hr (5.51 lb/hr); CO – 2.0 g/hp-hr (11.02 lb/hr); and VOC – 0.7 g/hp-hr (3.86 lb/hr). Based on the manufacturer’s specifications for these engines, the emission standards will be met.



The 84 hp Cummins G5.9 RICE (VRU-1) was manufactured after the July 1, 2007 date for engines with a maximum rated power capacity greater than or equal to 500 hp. Based on the manufacturer's specifications for these engines, the emission standards will be met.

These engines are not certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ. Therefore, Jay-Bee will be required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance.

**40CFR60 Subpart OOOOa** (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016. 40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO<sub>2</sub>) emissions from affected facilities that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016.

- a. Each well affected facility, which is a single natural gas well.

*There are no wells at this facility. Therefore, all requirements regarding gas well affected facilities under 40 CFR 60 Subpart OOOOa would not apply.*

- b. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your centrifugal compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

*There are no centrifugal compressors at the Pleasants Compressor Station. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOOa would not apply.*

- c. Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart,

your reciprocating compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

*There are reciprocating internal combustion engines located at the Pleasants Compressor Station that were constructed after September 18, 2015. Therefore, the requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOOa will apply. Jay-Bee will be required to perform the following:*

- Replace the reciprocating compressor rod packing at least every 26,000 hours of operation or 36 months or installation of a rod packing emissions collection system.
- Demonstrate initial compliance by continuously monitoring the number of hours of operation or track the number of months since the last rod packing replacement.
- Submit the appropriate start up notifications.
- Submit the initial annual report for the reciprocating compressors.
- Maintain records of hours of operation since last rod packing replacement, records of the date and time of each rod packing replacement, and records of deviations in cases where the reciprocating compressor was not operated in compliance.

d. Pneumatic Controllers

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh which commenced construction after August 23, 2011, and is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not located at a natural gas processing plant.
- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller which commenced construction after August 23, 2011, and is located at a natural gas processing plant.

*All pneumatic controllers at the facility will be air driven. Therefore, there are no applicable pneumatic controllers which commenced construction after September 18, 2015. Therefore, all requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOOa would not apply.*

- e. Each storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment.

40CFR60 Subpart OOOOa defines a storage vessel as a unit that is constructed primarily of non-earthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to contain an accumulation of liquids or other materials. The following are not considered storage vessels:

- Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If the source does not keep or are not able to produce records, as required by §60.5420(c)(5)(iv), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel since the original vessel was first located at the site.
- Process vessels such as surge control vessels, bottoms receivers or knockout vessels.
- Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

The potential for VOC emissions must be calculated using a generally accepted model or calculation methodology, based on the maximum average daily throughput for a 30-day period of production prior to the applicable emission determination deadline specified in this subsection. The determination may take into account requirements under a legally and practically enforceable limit in an operating permit or other requirement established under a federal or state authority. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup.

*The storage vessels located at the Pleasants Compressor Station are controlled by a VRU which will reduce the potential to emit to less than 6 tpy of VOC. Therefore, Jay-Bee is not required by this section to further reduce VOC emissions by 95%. Jay-Bee is claiming a control efficiency of 95% for the VRU.*

- f. The group of all equipment, except compressors, within a process unit is an affected facility.
- Addition or replacement of equipment for the purpose of process improvement that is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.
  - Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§60.5400a, 60.5401a, 60.5402a, 60.5421a and 60.5422a of this subpart if it is located at an onshore natural gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§60.5400a, 60.5401a, 60.5402a, 60.5421a and 60.5422a of this subpart.
  - The equipment within a process unit of an affected facility located at onshore natural gas processing plants and described in paragraph (f) of this section are exempt from this subpart if they are subject to and controlled according to subparts VVa, GGG or GGGa of this part.

*The Pleasants Compressor Station is not a natural gas processing plant. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would not apply.*

- g. Sweetening units located at onshore natural gas processing plants that process natural gas produced from either onshore or offshore wells.
- Each sweetening unit that processes natural gas is an affected facility; and
  - Each sweetening unit that processes natural gas followed by a sulfur recovery unit is an affected facility.
  - Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H<sub>2</sub>S) in the acid gas (expressed as sulfur) are required to comply with recordkeeping and reporting requirements specified in §60.5423a(c) but are not required to comply with §§60.5405a through 60.5407a and paragraphs 60.5410a(g) and 60.5415a(g) of this subpart.
  - Sweetening facilities producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the atmosphere are not subject to §§60.5405a through 60.5407a, 60.5410a(g), 60.5415a(g), and 60.5423a of this subpart.

*There are no sweetening units at the Pleasants Compressor Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOOa would not apply.*

h. Pneumatic Pumps

*The pneumatic pump requirements apply only to natural gas processing facilities and well sites. Therefore, all requirements regarding pneumatic pumps under 40 CFR 60 Subpart OOOOa would not apply to the Pleasants Compressor Station.*

i. Collection of fugitive emission components.

*The rule requires quarterly leak monitoring at natural gas compressor stations. In addition to optical gas imaging (OGI), the rule allows owners/operators to use Method 21 with a repair threshold of 500 ppm as an alternative for finding and repairing leaks. Method 21 is an EPA method for determining VOC emissions from process equipment. The method utilizes a portable VOC monitoring instrument.*

**40CFR63 Subpart HH** (National Emission Standards for Hazardous Air Pollutants for Oil and Natural Gas Production Facilities)

Subpart HH establishes national emission limitations and operating limitations for HAPs emitted from oil and natural gas production facilities located at major and area sources of HAP emissions. The glycol dehydration units at the Pleasants Compressor Station are subject to the area source requirements for glycol dehydration units. However, because the facility is an area source of HAP emissions and the actual average benzene emissions from the glycol dehydration units are below 0.90 megagram per year (1.0 tons/year) it is exempt from all requirements of Subpart HH except to maintain records of actual average flowrate of natural gas to demonstrate a continuous exemption status.

**40CFR63 Subpart ZZZZ** (National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for HAPs emitted from stationary RICE located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. The engines (CE1-CE4, VRU-1) at the Pleasants Compressor Station are subject to the area source requirements for non-emergency spark ignition engines.

The applicability requirements for new stationary RICEs located at an area source of HAPs, is the requirement to meet the standards of 40CFR60 Subpart JJJJ. These requirements were outlined above. The proposed engine meets these standards.

Because these engines are not certified by the manufacturer, Jay-Bee will be required to perform an initial performance test within 180 days from startup, and subsequent testing every 8,760 hours or 3 years, whichever comes first.

The following rules do not apply to the facility:

**45CSR14** (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

**45CSR19** (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The Pleasants Compressor Station is located in Tyler County, which is an unclassified county for all criteria pollutants, therefore the Pleasants Compressor Station is not applicable to 45CSR19.

As shown in the following table, Jay-Bee is not a major source subject to 45CSR14 or 45CSR19 review. According to 45CSR14 Section 2.43.e, fugitive emissions are not included in the major source determination because it is not listed as one of the source categories in Table 1. Therefore, the fugitive emissions are not included in the PTE below.

Pollutant	PSD (45CSR14) Threshold (tpy)	NANSR (45CSR19) Threshold (tpy)	Pleasants PTE (tpy)	45CSR14 or 45CSR19 Review Required?
Carbon Monoxide	250	NA	22.54	No
Nitrogen Oxides	250	NA	43.51	No
Sulfur Dioxide	250	NA	0.18	No
Particulate Matter 2.5	250	NA	3.30	No
Ozone (VOC)	250	NA	62.92	No

**40CFR60 Subpart Kb** (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb does apply to storage vessels with a capacity greater than or equal to 75 cubic meters (19,812.9 gal). There are no tanks at the facility with a capacity larger than 75 cubic meters.

**40CFR60 Subpart KKK** (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The Pleasants Compressor Station is not a natural gas processing facility, therefore, Jay-Bee is not subject to this rule.

## TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

The majority of non-criteria regulated pollutants fall under the definition of HAPs which, with some revision since, were 188 compounds identified under Section 112(b) of the Clean Air Act (CAA) as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. The Pleasants Compressor Station is classified as an area source of hazardous air pollutants. Listed below is a description of the primary hazardous air pollutants for this facility.

### **Acetaldehyde**

Acetaldehyde is mainly used as an intermediate in the synthesis of other chemicals. It is common in the environment and may be formed in the body from the breakdown of ethanol. Acute (short-term) exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic (long-term) intoxication of acetaldehyde resemble those of alcoholism. Acetaldehyde is considered a probable human carcinogen (Group B2) based on human cancer studies and animal studies that have shown nasal tumors in rats and laryngeal tumors in hamsters.

### **Acrolein**

Acrolein is primarily used as an intermediate in the synthesis of acrylic acid and as a biocide. It may be formed from the breakdown of certain pollutants in outdoor air or from the burning of organic matter including tobacco, or fuels such as gasoline or oil. It is toxic to humans following inhalation, oral or dermal exposures. Acute (short-term) inhalation exposure may result in upper respiratory tract irritation and congestion. No information is available on its reproductive, developmental, or carcinogenic effects in humans, and the existing animal cancer data are considered inadequate to make a determination that acrolein is carcinogenic to humans.

### **Benzene**

Benzene is found in the air from emissions from burning coal and oil, gasoline service stations, and motor vehicle exhaust. Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as a Group A, human carcinogen.

### **Formaldehyde**

Formaldehyde is used mainly to produce resins used in particle board products and as an intermediate in the synthesis of other chemicals. Exposure to formaldehyde may occur by breathing contaminated indoor air, tobacco smoke, or ambient urban air. Acute (short-term) and chronic (long-term) inhalation exposure to formaldehyde in humans can result in respiratory symptoms, and eye, nose, and throat irritation. Limited human studies have reported an association between formaldehyde exposure and lung and nasopharyngeal cancer. Animal inhalation studies have reported an increased incidence of nasal squamous cell cancer. EPA considers formaldehyde a probable human carcinogen (Group B1).

## **Methanol**

Methanol is released to the environment during industrial uses and naturally from volcanic gases, vegetation, and microbes. Exposure may occur from ambient air and during the use of solvents. Acute (short-term) or chronic (long-term) exposure of humans to methanol by inhalation or ingestion may result in blurred vision, headache, dizziness, and nausea. No information is available on the reproductive, developmental, or carcinogenic effects of methanol in humans. Birth defects have been observed in the offspring of rats and mice exposed to methanol by inhalation. EPA has not classified methanol with respect to carcinogenicity.

Methanol is primarily used as an industrial solvent for inks, resins, adhesives, and dyes. It is also used as a solvent in the manufacture of cholesterol, streptomycin, vitamins, hormones, and other pharmaceuticals. Methanol is also used as an antifreeze for automotive radiators, an ingredient of gasoline (as an antifreezing agent and octane booster), and as fuel for picnic stoves. Methanol is also an ingredient in paint and varnish removers. Methanol is also used as an alternative motor fuel.

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health effects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, *there are no federal or state ambient air quality standards for these specific chemicals*. For a complete discussion of the known health effects of each compound refer to the IRIS database located at [www.epa.gov/iris](http://www.epa.gov/iris).

## **AIR QUALITY IMPACT ANALYSIS**

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) as seen in the table listed in the Regulatory Discussion Section.

## **SOURCE AGGREGATION**

“Building, structure, facility, or installation” is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The Source Determination Rule for the oil and gas industry was published in the Federal Register on June 3, 2016 and became effective on August 2, 2016. EPA defined the term “adjacent” and stated that equipment and activities in the oil and gas sector that are under common control will be considered part of the same source if they are located on the same site or on sites that share equipment and are within ¼ mile of each other.

The Pleasants Compressor Station will operate under SIC code 4923 (Natural Gas Distribution). There are other compressor stations operated by Jay-Bee that share the same two-digit major SIC



code of 49 for natural gas distribution. However, this compressor station is not located on “contiguous or adjacent” property.

“Contiguous or Adjacent” determinations are made on a case by case basis. There is a natural gas production facility (Addie Pad) operating under SIC code 1311, located 0.1 miles from the proposed facility that is under common control of Jay-Bee. Therefore, this facility would be considered adjacent.

Because there are no facilities that are under common control, located on contiguous or adjacent properties and operating under the same standard industrial classification code, the emissions from the Pleasants Compressor Station should not be aggregated with other facilities in determining major source or PSD status.

### MONITORING OF OPERATIONS

Jay-Bee will be required to perform the following monitoring:

- Monitor and record quantity of natural gas consumed for all engines and combustion sources.
- Monitor all applicable requirements of 40CFR60 Subparts JJJJ and OOOOa and 40CFR63 Subparts HH and ZZZZ.
- Monitor the presence of the flare pilot flame with a thermocouple or equivalent.

Jay-Bee will be required to perform the following recordkeeping:

- Maintain records of the amount of natural gas consumed and hours of operation for all engines and combustion sources.
- Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
- Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
- Maintain records of the visible emission opacity tests conducted per the permit.
- Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
- Maintain records of all applicable requirements of 40CFR60 Subparts JJJJ and OOOOa and 40CFR63 Subparts HH and ZZZZ.
- Maintain records of the flare design evaluation.
- The records shall be maintained on site or in a readily available off-site location maintained by Jay-Bee for a period of five (5) years.

### RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Jay-Bee meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the Pleasants Compressor Station should be granted a 45CSR13 construction permit for their facility.

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Roy F. Kees, P.E.  
Engineer - NSR Permitting

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Date